



# *Cincinnati*

## MILLING MACHINE ARBORS AND ACCESSORIES

●

Testing the assembled arbor for concentricity. The testing machine was designed especially for this operation.



### ADVANTAGES

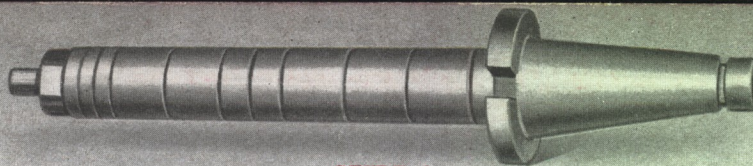
1. They are manufactured by makers of milling machines who have over 60 years of experience in the requirements for modern milling practice.
2. They are made in a special department with special machines.
3. They are made from specially selected and tested alloy steel forgings, and heat treated for strength and toughness through processes developed by us after years of experience in the manufacture of arbors.
4. The arbor collars are hardened and ground all over—insuring long life and the maintenance of the original accuracy.
5. A single wrench is used for the draw-in bolt and arbor nut—the same wrench as used for the standardized nuts on the machine proper.
6. Every arbor and every collar is subjected to a series of most rigid tests, making it certain that the high standard for these arbors is maintained.
7. *Cincinnati* arbors can be used in your plant on any milling machine equipped with the National Standard spindle end.

THE CINCINNATI MILLING MACHINE CO., CINCINNATI 9, OHIO, U. S. A.

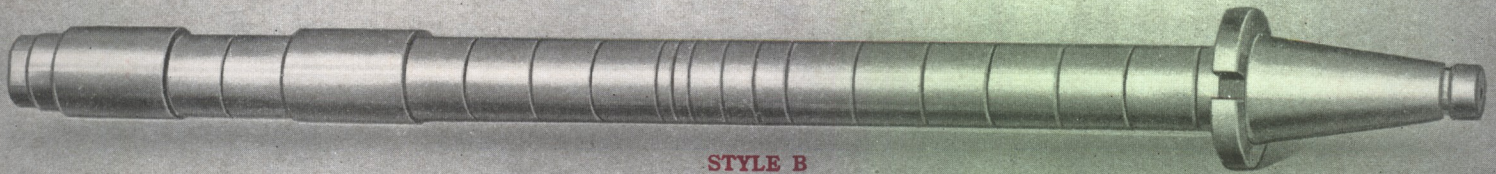
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STYLE A



STYLE B

## ARBORS

For Milling Machines Having National Standard Spindle Nose—No. 50 Series

(See page 19 for drawing of No. 50 Series taper shank)

Arbors listed under any group will interchange with machines in the same group, except where noted.

### GROUP A (Inch Sizes)

- |  |   |
|--|---|
| <p><del>No. 1 M Plain and Universal.</del><br/> <del>No. 2 M Plain and Universal.</del><br/> <del>No. 2 Plain and Universal L Type.</del><br/> <del>No. 2 Plain and Universal MH Type.</del><br/>         No. 2 Plain and Universal ML Type.<br/>         No. 2 Plain and Universal MI Type.<br/> <del>No. 2 High Power Plain and Universal.</del><br/>         *No. 2 Plain and Universal Medium Speed and High-Speed Dial Types.<br/>         *No. 3 Plain and Universal Medium Speed and High-Speed Dial Types.</p> | <p><del>No. 3 Standard Plain and Universal.</del><br/> <del>No. 3 High Power Plain and Universal.</del><br/>         *No. 4 Plain and Universal Medium Speed and High-Speed Dial Types.<br/> <del>No. 4 Standard Plain and Universal.</del><br/> <del>18" Plain Manufacturing.</del><br/> <del>18" and 24" Plain Automatics.</del><br/>         Nos. 2-18 and 2-24 Plain Automatics.<br/>         Nos. 3-24, 3-36, 34-36, 34-48, 35-48, 35-60, 36-72, 36-90, Plain Hydromatics.</p> |
|--|---|

Catalog Number	Diameter	Style (Lower case letters refer to notes)	Usable Length of Cutter Space	Diameter x Length of Bearing Collar	Size of Keyway		Code Name
					Width	Depth	
50- 7/8A10	7/8	(a) A (b)	10	None	.....	.....	TENAR
50-1 A12	1	(a) A (b)	12	None	1/4	5/32	ARTWA
50-1 A15	1	A	15	None	1/4	5/32	ARBAA
50-1 A18-4	1	(c) A	18	2 1/8x4	1/4	5/32	ATARB
50-1 B24-4	1	B	24	2 1/8x4	1/4	5/32	ARBFA
50-1 1/4A12	1 1/4	(a) A (b)	12	None	5/16	3/16	ARBCO
50-1 1/4A15	1 1/4	A	15	None	5/16	3/16	AROGU
50-1 1/4A18-4	1 1/4	(c) A	18	2 1/8x4	5/16	3/16	ARBRU
50-1 1/4B18-4	1 1/4	B	18	2 1/8x4	5/16	11/64	BETAR
50-1 1/4B24-4	1 1/4	B	24	2 1/8x4	5/16	3/16	ONARB
50-1 1/2B18-4	1 1/2	B	18	2 1/8x4	3/8	13/64	HAFAR
50-1 1/2B24-4	1 1/2	B	24	2 1/8x4	3/8	7/32	FORAR
50-1 1/2B30-4	1 1/2	B	30	2 1/8x4	3/8	7/32	ARBTY
50-1 1/2B36-4	1 1/2	B	36	2 1/8x4	3/8	7/32	ARGOB
50-2 B24-5	2	(b) B (d)	24	2 3/4x4	1/2	5/16	ARJYN
50-2 B30-5	2	(b) B (d)	30	2 3/4x4	1/2	5/16	TUBAR
50-2 B36-5	2	(b) B (d)	36	2 3/4x4	1/2	5/16	ARCOD

### NOTES:

- Arbor Support Bushing Adapter M-01 (see bottom page 13) must be used with "A" type arbors numbers 50-7/8A10, 50-1A12 and 50-1 1/4A12 when these arbors are to be used on the No. 2 High Power, No. 3 Medium Speed and High-Speed Dial Type, No. 3 Standard, No. 3 High Power, No. 4 Medium Speed and High-Speed Dial Types, No. 4 Standard, 18" Mfg. and Hydromatic machines.
  - Cannot be used on 18" and 24" Automatic Machines.
  - Arbors 50-1A18-4 and 50-1 1/4A18-4 cannot be supported by means of pilot end in Style "A" arbor support on the L-Type, MH and M-Type machines.
  - Arbor includes two suitable bushings for 2 3/4" diameter bearing collars.  
 \*Medium Speed and High-Speed Dial Type Machines having two-piece braces, require the following arbors when braces are used: No. 2 Plain and Universal, 50-1 1/2B30-4; No. 3 Plain and Universal, 50-1 1/2B30-4; No. 4 Plain and Universal, 50-1 1/2B36-4.
- Machines with a colored line imprinted over the black are discontinued models.  
 Always Order Arbors by the Code Name and Catalog Number.



## ARBORS—No. "50" Series—(Concluded)

### Explanation of Catalog Numbers

1. The last numeral in the catalog number—3, 4, 5, 6, or 7, designates the diameter of bearing collar.

Bearing Collar Number.....	3	4	5	6	7
Diameter of Bearing Collar...	1 $\frac{7}{8}$ "	2 $\frac{1}{8}$ "	2 $\frac{3}{4}$ "	3 $\frac{3}{8}$ "	4 $\frac{1}{8}$ "

2. Bearing collar supplied only where a dimension is given in the column "Diameter of Bearing Collar".



Arbors listed under any group will interchange with machines in the same group, except where noted.

#### GROUP B (Inch Sizes)

Nos. 4 and 5 High Power, Plain and Universal.  
48" Automatic Plain.

Nos. 5 and 6 High Power Dial Type, Plain and Universal.

Nos. 5 and 6 Dual Power Dial Type, Plain.

All sizes of Plain Hydromatics except: 3-24, 3-36, 34-36, 34-48, 35-48, 35-60, 36-72, 36-90.

Catalog Number	Diameter	Style (Lower case letters refer to notes)	Usable Length of Cutter Space	Diameter x Length of Bearing Collar	Size of Keyway		Code Name
					Width	Depth	
50- $\frac{7}{8}$ A10	$\frac{7}{8}$	(c) A	10	None	.....	.....	TENAR
50-1 A12	1	(c) A	12	None	$\frac{1}{4}$	$\frac{5}{32}$	ARTWA
50-1 A15	1	A	15	None	$\frac{1}{4}$	$\frac{5}{32}$	ARBAA
50-1 A18-5	1	A	18	2 $\frac{3}{4}$ x4	$\frac{1}{4}$	$\frac{5}{32}$	ARIUN
50-1 B24-5	1	B	24	2 $\frac{3}{4}$ x4	$\frac{1}{4}$	$\frac{5}{32}$	ARATT
50-1 $\frac{1}{4}$ A12	1 $\frac{1}{4}$	(c) A	12	None	$\frac{5}{16}$	$\frac{3}{16}$	ARBCO
50-1 $\frac{1}{4}$ A15	1 $\frac{1}{4}$	A	15	None	$\frac{5}{16}$	$\frac{3}{16}$	AROGU
50-1 $\frac{1}{4}$ A18-5	1 $\frac{1}{4}$	A	18	2 $\frac{3}{4}$ x4	$\frac{5}{16}$	$\frac{3}{16}$	ARGEЕ
50-1 $\frac{1}{4}$ B24-5	1 $\frac{1}{4}$	B	24	2 $\frac{3}{4}$ x4	$\frac{5}{16}$	$\frac{3}{16}$	FIARB
50-1 $\frac{1}{2}$ B18-5	1 $\frac{1}{2}$	B	18	2 $\frac{3}{4}$ x4	$\frac{3}{8}$	$\frac{7}{32}$	ARZUK
50-1 $\frac{1}{2}$ B24-5	1 $\frac{1}{2}$	B	24	2 $\frac{3}{4}$ x4	$\frac{3}{8}$	$\frac{7}{32}$	ARVOF
50-1 $\frac{1}{2}$ B30-5	1 $\frac{1}{2}$	B	30	2 $\frac{3}{4}$ x4	$\frac{3}{8}$	$\frac{7}{32}$	ARHAF
50-1 $\frac{1}{2}$ B36-5	1 $\frac{1}{2}$	B	36	2 $\frac{3}{4}$ x4	$\frac{3}{8}$	$\frac{7}{32}$	ARSIX
50-2 B24-5	2	(d) B	24	2 $\frac{3}{4}$ x4	$\frac{1}{2}$	$\frac{5}{16}$	ARNYG
50-2 B30-5	2	(d) B	30	2 $\frac{3}{4}$ x4	$\frac{1}{2}$	$\frac{5}{16}$	TOARB
50-2 B36-5	2	(d) B	36	2 $\frac{3}{4}$ x4	$\frac{1}{2}$	$\frac{5}{16}$	ARBOS
50-2 $\frac{1}{2}$ B30-6	2 $\frac{1}{2}$	(a) B	30	3 $\frac{3}{8}$ x4	$\frac{5}{8}$	$\frac{13}{32}$	SIXAR
50-2 $\frac{1}{2}$ B36-6	2 $\frac{1}{2}$	(a) B	36	3 $\frac{3}{8}$ x4	$\frac{5}{8}$	$\frac{13}{32}$	ARBSI
50-2 $\frac{1}{2}$ B30-6	2 $\frac{1}{2}$	(b) B	30	3 $\frac{3}{8}$ x4	$\frac{5}{8}$	$\frac{13}{32}$	ARSIT
50-2 $\frac{1}{2}$ B36-6	2 $\frac{1}{2}$	(b) B	36	3 $\frac{3}{8}$ x4	$\frac{5}{8}$	$\frac{13}{32}$	ARASH

#### GROUP C (Millimeter Sizes)

See Groups A and B, page 2 and above, for machines on which these arbors can be used.

Catalog Number	Nearest Inch Size	Diameter	Style	Usable Length of Cutter Space	Diameter x Length of Bearing Collar	Size of Keyway		Code Name
						Width	Depth	
M22A10	50- $\frac{7}{8}$ A10	22 mm.	A	254 mm.	None	6 mm.	3.97 mm.	ARFUZ
M27A12	50-1 A12	27 mm.	A	305 mm.	None	7 mm.	4.77 mm.	ARZEP
M27A18-4	50-1 A18-4	27 mm.	A	455 mm.	2 $\frac{1}{8}$ x4	7 mm.	4.77 mm.	ARBLO
M32A18-4	50-1 $\frac{1}{4}$ A18-4	32 mm.	A	455 mm.	2 $\frac{1}{8}$ x4	8 mm.	4.77 mm.	ARMET
M32B18-4	50-1 $\frac{1}{4}$ B18-4	32 mm.	B	455 mm.	2 $\frac{1}{8}$ x4	8 mm.	4.77 mm.	ARCEG
M32B24-4	50-1 $\frac{1}{4}$ B24-4	32 mm.	B	610 mm.	2 $\frac{1}{8}$ x4	8 mm.	4.77 mm.	ARALO
M40B30-5	50-1 $\frac{1}{2}$ B30-5	40 mm.	B	760 mm.	2 $\frac{3}{4}$ x4	10 mm.	4.77 mm.	ARJAB
M50B30-5	50-2 B30-5	50 mm.	B	760 mm.	2 $\frac{3}{4}$ x4	12 mm.	4.77 mm.	ARDEK
M50B36-5	50-2 B36-5	50 mm.	B	915 mm.	2 $\frac{3}{4}$ x4	12 mm.	4.77 mm.	ARYIF

- (a) Includes two suitable bushings for 3 $\frac{3}{8}$ " diameter bearing collars for all Group "B" machines except 48" Automatic.  
 (b) Includes one suitable bushing for 3 $\frac{3}{8}$ " diameter bearing collar for 48" Automatic only.  
 (c) 50- $\frac{7}{8}$ A10, 50-1A12, 50-1 $\frac{1}{4}$ A12 require the use of arbor support bushing adapter, Catalog Number M-02 (see bottom of page 13). Cannot be used on 48" Automatics.  
 (d) If wanted for small machines, see similar Catalog Number in group A.





## ARBORS

For Milling Machines Having National Standard Spindle Nose—No. 40 Series

(See page 19 for drawing of No. 40 Series taper shank)



STYLE A



STYLE B

### GROUP D (Inch Sizes)

Nos. 1-12 and 1-18 Milling Machines.

Catalog Number	Diameter	Style	Usable Length of Cutter Space	Diameter x Length of Bearing Collar	Size of Keyway		Code Name
					Width	Depth	
40- $\frac{7}{8}$ A-10	$\frac{7}{8}$	A	10	None	.....	.....	ARAAZ
40-1 A-11	1	A	11	None	$\frac{1}{4}$	$\frac{5}{32}$	ARBIZ
40-1 A-15	1	A	15	None	$\frac{1}{4}$	$\frac{5}{32}$	ARMUX
40-1 $\frac{1}{4}$ A-11	1 $\frac{1}{4}$	A	11	None	$\frac{5}{16}$	$\frac{11}{64}$	ARCCY
40-1 $\frac{1}{4}$ A-14	1 $\frac{1}{4}$	A	14	None	$\frac{5}{16}$	$\frac{11}{64}$	ARTUM
40- $\frac{7}{8}$ B-15 $\frac{1}{2}$ -3	$\frac{7}{8}$	B	15 $\frac{1}{2}$	1 $\frac{7}{8}$ x4	.....	.....	ARDOY
40-1 B-15 $\frac{1}{2}$ -3	1	B	15 $\frac{1}{2}$	1 $\frac{7}{8}$ x4	$\frac{1}{4}$	$\frac{5}{32}$	AREER
40-1 B-18 -3	1	B	18	1 $\frac{7}{8}$ x4	$\frac{1}{4}$	$\frac{5}{32}$	ARTIC
40-1 $\frac{1}{4}$ B-15 $\frac{1}{2}$ -3	1 $\frac{1}{4}$	B	15 $\frac{1}{2}$	1 $\frac{7}{8}$ x4	$\frac{5}{16}$	$\frac{11}{64}$	ARFEB
40-1 $\frac{1}{4}$ B-18 -3	1 $\frac{1}{4}$	B	18	1 $\frac{7}{8}$ x4	$\frac{5}{16}$	$\frac{11}{64}$	ARWYZ

NOTE—Style “A” arbors in the No. 40 Series have no bearing collars.

Style “B” arbors in the No. 40 Series have one 1 $\frac{7}{8}$ ” diameter bearing collar.

Arbors 40—1B-18 and 40—1 $\frac{1}{4}$ B-18 must be selected when braces are to be used on 1-12 and 1-18 machines.

### GROUP E (Inch Sizes)

No. 0-8 Plain Automatic Milling Machine only.

Catalog Number	Diameter	Style	Usable Length of Cutter Space	Diameter x Length of Bearing Collar	Size of Keyway		Code Name
					Width	Depth	
*40- $\frac{3}{4}$ A- 6 $\frac{1}{2}$	$\frac{3}{4}$	A	6 $\frac{1}{2}$	None	.....	.....	AROOT
40- $\frac{7}{8}$ A- 6 $\frac{1}{2}$	$\frac{7}{8}$	A	6 $\frac{1}{2}$	None	.....	.....	AREIG
40-1 A- 6 $\frac{1}{2}$	1	A	6 $\frac{1}{2}$	None	$\frac{1}{4}$	$\frac{5}{32}$	ARONA
40-1 $\frac{1}{4}$ A- 6	1 $\frac{1}{4}$	A	6	None	$\frac{5}{16}$	$\frac{3}{16}$	AROAT
40- $\frac{3}{4}$ B-10-3	$\frac{3}{4}$	B	10	1 $\frac{7}{8}$ x3	.....	.....	ANAZT
40- $\frac{7}{8}$ B-10-3	$\frac{7}{8}$	B	10	1 $\frac{7}{8}$ x3	.....	.....	ABZUM
40-1 B-10-3	1	B	10	1 $\frac{7}{8}$ x3	$\frac{1}{4}$	$\frac{5}{32}$	AREYB
40-1 $\frac{1}{4}$ B-10-3	1 $\frac{1}{4}$	B	10	1 $\frac{7}{8}$ x3	$\frac{5}{16}$	$\frac{3}{16}$	ARRUB

\*Requires the use of special bushing No. 102350.

Always Order Arbors by the Code Name and Catalog Number.



## ARBORS AND COLLET ADAPTERS

For 36" Series Horizontal Hydro-Tel Milling Machines Only

**ARBORS FOR AUXILIARY No. 50 SERIES SPINDLE** (See page 19 for drawing of No. 50 Series taper shank)

Refer to Group "B" arbors listed on page 3. With a slight \*alteration, those having  $2\frac{3}{4}$ " diameter bearing collar may be used.

Order by catalog number only, and specify "for use on 36" Series Horizontal Hydro-Tel".

**ARBORS FOR MAIN No. 60 SERIES SPINDLE** (See page 19 for drawing of No. 60 Series taper shank)

With the No. 60 to 50 adapter (standard machine equipment) attached to the spindle, No. 50 Series Arbors may be used. Refer to Group "B" arbors listed on page 3. With a slight \*alteration, those having  $2\frac{3}{4}$ " or  $3\frac{3}{8}$ " diameter bearing collars may be used.

Order by catalog number only, and specify "for use on 36" Series Horizontal Hydro-Tel".

In addition, the following group of arbors are now carried in stock:

### GROUP F (Inch Sizes)

Catalog Number	Diameter	Style	Usable Length of Cutter Space	Diameter of Bearing Collar	Size of Keyway		Code Name
					Width	Depth	
50-1½B40-5	1½	B	40	2¾	¾	$\frac{7}{32}$	ARDEE
50-2 B40-5	2	B	40	2¾	½	$\frac{5}{16}$	ARIXE
50-2 B46-5	2	B	46	2¾	½	$\frac{5}{16}$	ARKOO
50-2½B40-6	2½	B	40	3⅜	⅝	$\frac{13}{32}$	ARLAL
50-2½B46-6	2½	B	46	3⅜	⅝	$\frac{13}{32}$	ARLOG
60-3 B36-7	3	B	36	4⅛	¾	$\frac{29}{64}$	ARZAY
60-3 B58-7	3	B	58	4⅛	¾	$\frac{29}{64}$	ARZOT

### SHELL END MILL ARBORS—STYLE "C"

Refer to the No. 50 Series Shell End Mill Arbors tabulated on page 10. With a slight \*alteration, these arbors may be used.

Order by catalog number only, and specify "for use on 36" Series Horizontal Hydro-Tel".

### COLLET ADAPTER—STYLE "E"

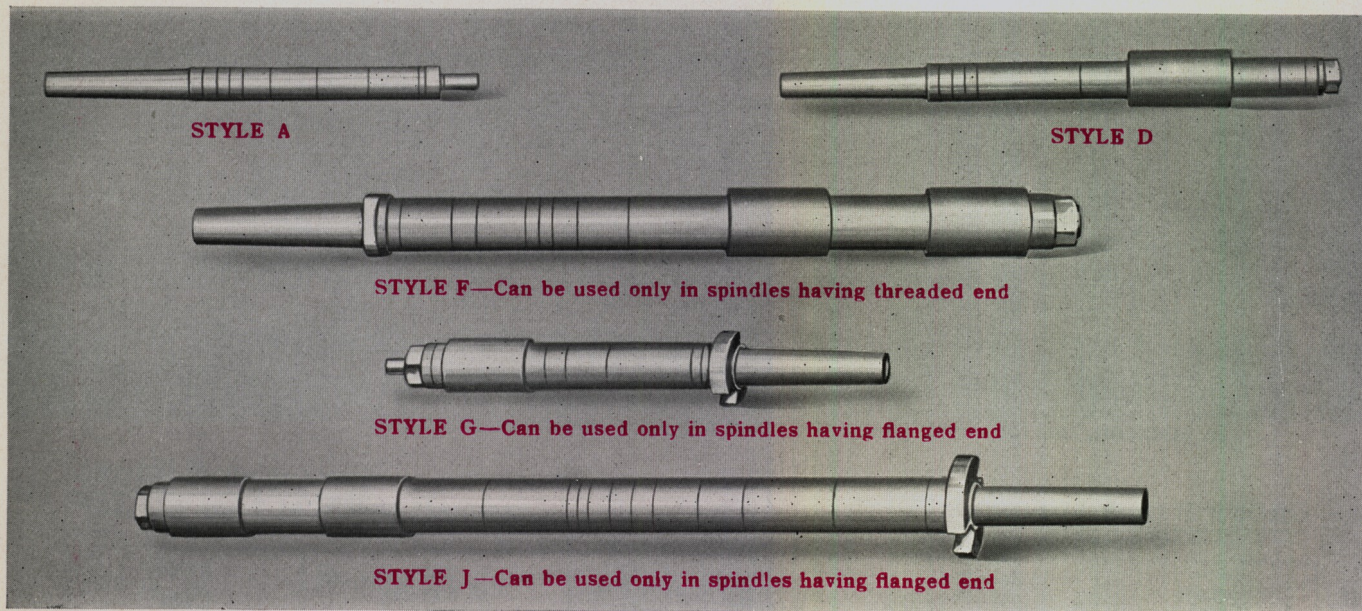
Refer to the No. 50 Series Collet Adapters tabulated on page 11. With a slight \*alteration, these adapters may be used.

Order by catalog number only, and specify "for use on 36" Series Horizontal Hydro-Tel".

\*NOTE—The alterations mentioned above are required so that the driving flange will fit the No. 50 Series Quick Change Adapter.



## ARBORS FOR CINCINNATI MILLING MACHINES



### ARBORS FOR THREADED SPINDLE—INCH SIZES

Arbors listed under any group will interchange with machines in the same group, except where noted	Cat. No.	Diam.	Style	Usable Length of Cutter Space	Diam. of Bearing Collar	Size of Keyway		B. & S. Taper	Code Name
						Width	Depth		
<b>GROUP L</b>									
Nos. 1 and 2 Cone Type.	1010	$\frac{7}{8}$	A*	8				10	ARNAU
No. 2 High Power.	1011	1	A	8		$\frac{1}{4}$	$\frac{5}{32}$	10	ARLEV
Plain and Universal.	1041	1	D	$14\frac{1}{2}$	2	$\frac{1}{4}$	$\frac{5}{32}$	10	ARKEY
Threaded Spindle.	1043	$1\frac{1}{4}$	D	$14\frac{1}{2}$	2	$\frac{1}{4}$	$\frac{3}{16}$	10	ARSPI
<b>GROUP M</b>									
No. 3 Cone Type.	1016	1	A	10		$\frac{1}{4}$	$\frac{5}{32}$	11	ARPPA
Plain and Universal.	1053	1	D	$18\frac{1}{2}$	$2\frac{3}{8}$	$\frac{1}{4}$	$\frac{5}{32}$	11	ARBDE
Threaded Spindle.	1055	$1\frac{1}{4}$	D	$18\frac{1}{2}$	$2\frac{3}{8}$	$\frac{5}{16}$	$\frac{3}{16}$	11	ARBYV
	1056	$1\frac{1}{2}$	D	$18\frac{1}{2}$	$2\frac{3}{8}$	$\frac{3}{8}$	$\frac{7}{32}$	11	ARQUO
<b>GROUP N</b>									
No. 3 Std. and High Power.	1059	$1\frac{1}{4}$	F	29	$2\frac{3}{8}$	$\frac{5}{16}$	$\frac{3}{16}$	11	ARSTA
No. 4 Standard.	1057	$1\frac{1}{2}$	F	29	$2\frac{3}{8}$	$\frac{3}{8}$	$\frac{7}{32}$	11	ARHIP
Plain and Universal									
Threaded Spindle.									
<b>GROUP P</b>									
No. 4 Cone Type.	1090	1	A	10		$\frac{1}{4}$	$\frac{5}{32}$	12	ARNBY
Nos. 4 and 5 High Power.	1066	$1\frac{1}{4}$	F	26	$2\frac{5}{8}$	$\frac{5}{16}$	$\frac{3}{16}$	12	ARNOW
Plain and Universal.	1067	$1\frac{1}{2}$	F	26	$2\frac{5}{8}$	$\frac{3}{8}$	$\frac{7}{32}$	12	ARROG
Threaded Spindle.	1069	2	F	26	$2\frac{5}{8}$	$\frac{1}{2}$	$\frac{5}{16}$	12	ARTYP

\*See note, page 7.

Always Order Arbors by the Code Name and Catalog Number.



# WITH B. & S. TAPER HOLE IN SPINDLE

## ARBORS FOR FLANGED SPINDLE—INCH SIZES

Arbors listed under any group will interchange with machines in the same group, except where noted	Cat. No.	Diam.	Style	Usable Length of Cutter Space	Diam. of Bearing Collar	Size of Keyway		B. & S. Taper	Code Name
						Width	Depth		
<b>GROUP R</b>									
No. 1 M.	1112	1	A	12	.....	1/4	5/32	14	ARMON
No. 2 M.	1119	1	J†	21	2 3/8	1/4	5/32	14	ARMTU
Plain and Universal.	1120	1 1/4	J†	21	2 3/8	1/6	1/16	14	ARMZI
Flanged Spindle.									
<b>GROUP S</b>									
No. 2 High Power	1016	1	A	10	.....	1/4	5/32	11	ARPPA
No. 3 Cone Type.	1081	1 1/4	G	12	2 3/8	5/16	3/16	11	ARCUS
No. 3 Standard.	1087	1	J	18 1/2	2 3/8	1/4	5/32	11	ARYDD
No. 3 High Power	1083	1 1/4	J	18 1/2	2 3/8	1/6	1/16	11	ARWER
No. 4 Standard.	1084	1 1/2	J	18 1/2	2 3/8	3/8	1/32	11	ARTAB
Plain and Universal.	1085	1 1/4	J	29	2 3/8	1/6	1/16	11	AROTE
Flanged Spindle, 11 Taper.	1086	1 1/2	J	29	2 3/8	3/8	1/32	11	ARHOK
<b>GROUP T</b>									
Nos. 2 and 3 High Power.	1112	1	A	12	.....	1/4	5/32	14	ARMON
No. 3 Standard.	1123	1	J	21	2 5/8	1/4	5/32	14	AREFT
No. 4 Standard.	1104	1 1/4	J	27	2 5/8	1/6	1/16	14	AROSP
Plain and Universal.	1105	1 1/2	J	27	2 5/8	3/8	1/32	14	ARGAN
Flanged Spindle, 14 Taper.	1107	2	J	27	2 5/8	1/2	5/32	14	ARHEX
<b>GROUP U</b>									
No. 4 Cone Type.	1090	1	A	10	.....	1/4	5/32	12	ARNBY
No. 4 High Power.	1091	1 1/4	G	12	2 5/8	1/6	1/16	12	ARJUX
No. 5 High Power.	1093	1 1/4	J	26	2 5/8	1/6	1/16	12	ARKIR
Plain and Universal.	1094	1 1/2	J	26	2 5/8	3/8	1/32	12	ARLMA
Flanged Spindle, 12 Taper.	1101	1 1/2	J	36	2 5/8	3/8	1/32	12	ARTES
	1103	2	J	36	2 5/8	1/2	5/16	12	ARINC
<b>GROUP W</b>									
No. 4 High Power.	1104	1 1/4	J	27	2 5/8	5/16	3/16	14	AROSP
No. 5 High Power.	1105	1 1/2	J	27	2 5/8	3/8	1/32	14	ARGAN
Plain and Universal.	1107	2	J	27	2 5/8	1/2	1/16	14	ARHEX
Flanged Spindle, 14 Taper.	1108	1 1/2	J	38	2 5/8	3/8	1/32	14	ARAND
	1110	2	J	38	2 5/8	1/2	5/16	14	ARVAR
	1111	2 1/2	J†	38	3 1/4	5/8	1/32	14	ARWAK
<b>GROUP X</b>									
18" Plain Manufacturing.	1141	1	J†	14 1/2	2	1/4	5/32	10	ARXEL
Flanged Spindle.	1143	1 1/4	J†	14 1/2	2	1/6	1/16	10	ARYSE
<b>GROUP Y</b>									
18" and 24" Automatic, Plain.	1087	1	J	18 1/2	2 3/8	1/4	5/32	11	ARYDD
Flanged Spindle, 11 Taper.	1083	1 1/4	J	18 1/2	2 3/8	1/6	1/16	11	ARWER
	1084	1 1/2	J	18 1/2	2 3/8	3/8	1/32	11	ARTAB
<b>GROUP Z</b>									
48" Automatic, Plain.	1104	1 1/4	J	27	2 5/8	5/16	3/16	14	AROSP
Flanged Spindle, 14 Taper.	1105	1 1/2	J	27	2 5/8	3/8	1/32	14	ARGAN
	1107	2	J	27	2 5/8	1/2	1/16	14	ARHEX

\*NOTE—When it is necessary to use a 7/8 arbor on the larger machines we recommend this No. 1010 Arbor in connection with standard collets as follows:

Nos. 2 and 3 H. P., No. 3 Standard and Cone Type machines with flanged or threaded spindle nose having No. 11 B. & S. taper hole, use 459 Collet.

Nos. 4 and 5 machines with threaded spindle nose and No. 4 with flanged spindle nose having No. 12 B. & S. taper hole, use 461 Collet.

Nos. 2, 3, 4 and 5 machines with No. 14 taper hole, use 463 Collet.

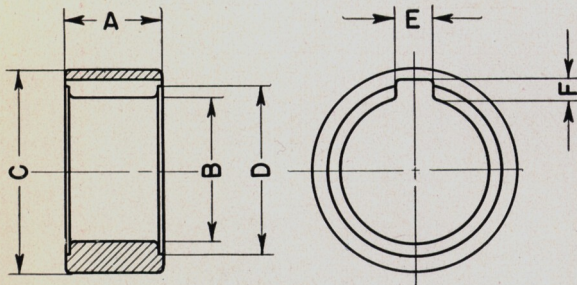
†Furnished with only one bearing collar.

‡Arbor No. 1111 includes special bushings for arbor supports.

Always Order Arbors by the Code Name and Catalog Number.

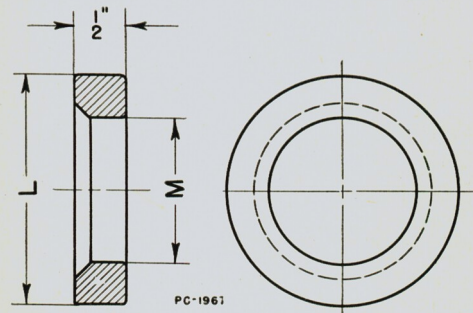
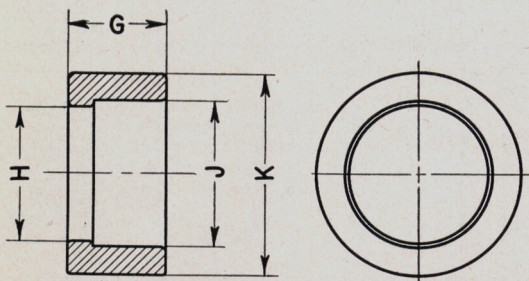


## ARBOR SPACING COLLARS



Nom. Size of Arbor	Part Number	Length A	Dia. of Hole B	Outside Dia. C	Cobore Dia. D	Keyway	
						Width E	Depth F
3/4"	4104	1/2"	3/4"	1.175"	7/8"	.....	.....
	4106	1"		1.178"			
	4105	2"					
7/8"	3644	1/2"	7/8"	1.300"	1"	.....	.....
	3645	1"		1.303"			
	3646	2"					
1"	3647	1/2"	1"	1.612"	1 1/4"	.265"	1/8"
	3648	1"		1.615"		.270"	
	3649	2"					
1 1/4"	3651	1/2"	1 1/4"	1.852"	1 1/2"	.327"	5/32"
	3652	1"		1.855"		.332"	
	3653	2"					
1 1/2"	3655	1/2"	1 1/2"	2.102"	1 3/4"	.390"	3/16"
	3656	1"		2.105"		.395"	
	3657	2"					
2"	3659	1/2"	2"	2.727"	2 1/4"	.515"	1/4"
	3660	1"		2.730"		.520"	
	3661	2"					
2 1/2"	3663	1/2"	2 1/2"	3.352"	2 3/4"	.640"	9/32"
	3664	1"		3.355"		.645"	
	3665	2"					

## ARBOR FRONT AND BACK COLLARS



Nom. Size of Arbor	Part Number	Length G	Dia. of Hole H	Dia. of Hole J	Outside Dia. K
3/4"	.....	.....	.....	.....	.....
7/8"	.....	.....	.....	.....	.....
1"	.....	.....	.....	.....	.....
1 1/4"	3677	1"	1 1/2"	1 1/4"	1.852" 1.855"
1 1/2"	3678	1"	1 3/2"	1 1/2"	2.100" 2.103"
2"	3679	1"	1 3/2"	2"	2.727" 2.730"
2 1/2"	3680	1 1/8"	1 3/2"	2 1/2"	3.352" 3.355"

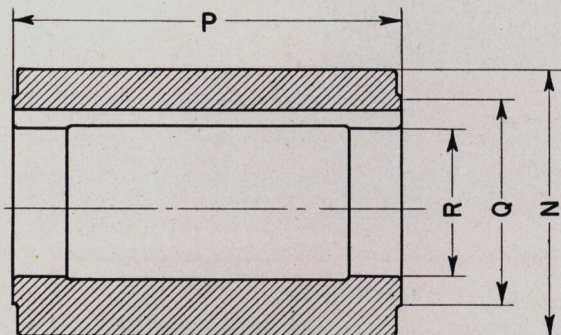
Nom. Size of Arbor	Part Number	Outside Dia. L	Dia. of Hole M
3/4"	4103	1.487" 1.490"	3/4"
7/8"	3681	1.487" 1.490"	7/8"
1"	3682	1.799" 1.802"	1"
1 1/4"	3683	2.102" 2.105"	1 1/4"
1 1/2"	3684	2.352" 2.355"	1 1/2"
2"	3685	2.984" 2.987"	2"
2 1/2"	3686	3.602" 3.605"	2 1/2"

Always Order Arbors by the Code Name and Catalog Number.



## ARBOR BEARING COLLARS

For National Standard Taper Shank Arbors

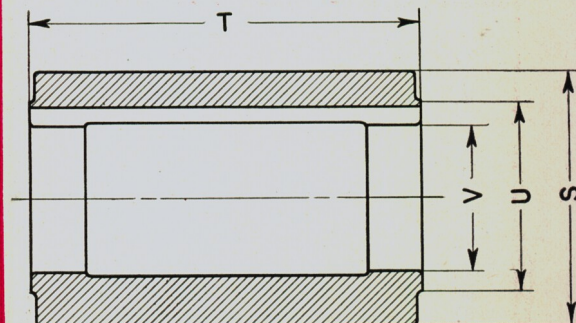


Nom. Size of Arbor	Part No.	Outside Dia. N	Length P	Face Dia. Q	Dia. of Hole R	Keyway	
						Width	Depth
$\frac{3}{4}$ "	4166	1.8740" 1.8743"	3"	$1\frac{3}{16}$ "	.7500" .7505"	.....	.....
$\frac{7}{8}$ "	4112 4032	1.8740" 1.8743"	3" 4"	$1\frac{3}{8}$ "	.8750" .8755"	.....	.....
1"	4108	1.8740"	3"	$1\frac{3}{8}$ "	1.0000" 1.0005"	.265" .270"	$\frac{1}{8}$ "
	3667	1.8743"	4"				
	3668	2.1235" 2.1238"	4"				
	3788	2.7485" 2.7488"	4"				
1 $\frac{1}{4}$ "	4107	1.8740"	3"	$1\frac{1}{8}$ "	1.2500" 1.2505"	.327" .332"	$\frac{5}{32}$ "
	3669	1.8743"	4"				
	3670	2.1235" 2.1238"	4"				
	3671	2.7485" 2.7488"	4"				
1 $\frac{1}{2}$ "	3672	2.1235" 2.1238"	4"	$2\frac{1}{8}$ "	1.5000" 1.5005"	.390" .395"	$\frac{3}{16}$ "
	3673	2.7485" 2.7488"	4"				
2"	3674	2.7485" 2.7488"	4"	$2\frac{3}{4}$ "	2.0000" 2.0005"	.515" .520"	$\frac{11}{64}$ "
	3675	3.3735" 3.3738"	4"				
2 $\frac{1}{2}$ "	3676	3.3735" 3.3738"	4"	.....	2.5000" 2.5005"	.640" .645"	$\frac{9}{32}$ "

## ARBOR BEARING COLLARS

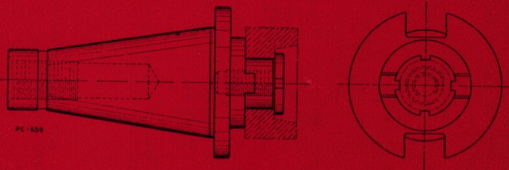
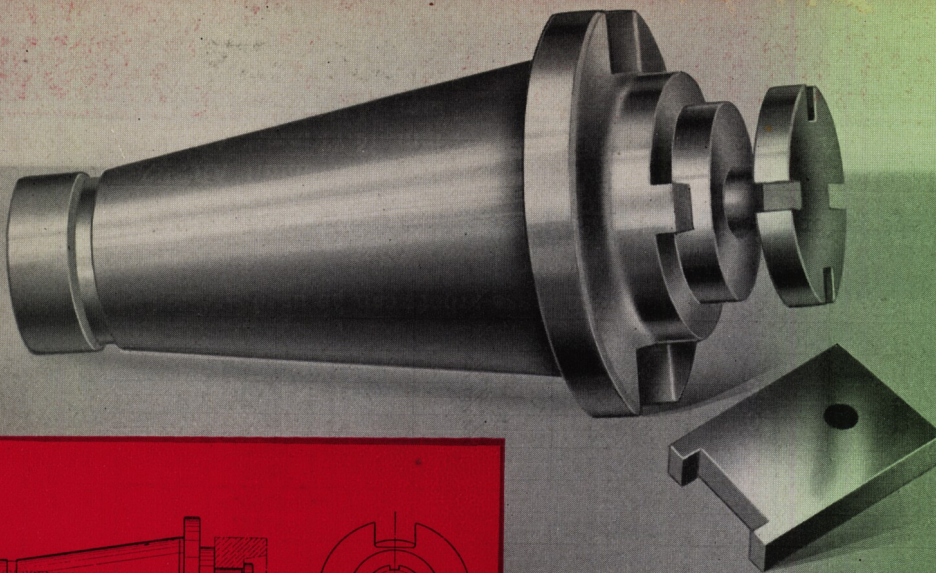
For B. & S. Taper Shank Arbors

Nom. Size of Arbor	Part No.	Outside Dia. S	Length T	Face Dia. U	Hole Dia. V	Keyway	
						Width	Depth
1"	56753	1.9990" 1.9993"	4"	.....	1.0000" 1.0005"	.265" .270"	$\frac{1}{8}$ "
	56754	2.3735" 2.3738"	4"	$1\frac{1}{16}$ "	.....	.....	.....
1 $\frac{1}{4}$ "	56756	1.9990" 1.9993"	4"	.....	1.2500" 1.2505"	.327" .332"	$\frac{5}{32}$ "
	56757	2.3735" 2.3738"	4"	$1\frac{1}{16}$ "			
	56758	2.6235" 2.6238"	4"	$1\frac{1}{8}$ "			
1 $\frac{1}{2}$ "	56759	2.3735" 2.3738"	4"	.....	1.5000" 1.5005"	.390" .395"	$\frac{3}{16}$ "
	56760	2.6235" 2.6238"	4"	$1\frac{1}{8}$ "			
2"	56683	2.6235" 2.6238"	4"	.....	2.0000" 2.0005"	.515" .520"	$\frac{3}{16}$ "
2 $\frac{1}{2}$ "	56761	3.2485" 3.2488"	4"	.....	2.5000" 2.5005"	.640" .645"	$\frac{7}{32}$ "



Always Order Arbors by the Code Name and Catalog Number.





## SHELL END MILL ARBORS... Style C

For Milling Machines Having National Standard Spindle Nose—  
Nos. 40 and 50 Series

Spindle Series	Diameter Range of End Mills	Stud Diam.	Catalog Number	Part Numbers			Code Name
				Wrench	Screw	Collar	
Inch Sizes No. "50"—For All Standard Spindle Millers Except Nos. 0-8, 1-12, 1-18, and Four-Spindle 360-Degree Automatic Profiler (See Note 1 Below)	1 $\frac{1}{4}$ -1 $\frac{1}{2}$	$\frac{1}{2}$	50- $\frac{1}{2}$ C $\frac{5}{8}$	.....	3714	.....	SHEMA
	1 $\frac{3}{4}$ -2	$\frac{3}{4}$	50- $\frac{3}{4}$ C $\frac{5}{8}$	.....	3715	.....	SEMCO
	2 $\frac{1}{4}$ -2 $\frac{1}{2}$ -2 $\frac{3}{4}$	1	50-1 C $\frac{7}{8}$	.....	3716	3749	SHEPU
	3-3 $\frac{1}{2}$	1 $\frac{1}{4}$	50-1 $\frac{1}{4}$ C $\frac{7}{8}$	3705	3717	3751	SHEHI
	4-4 $\frac{1}{2}$ -5	1 $\frac{1}{2}$	50-1 $\frac{1}{2}$ C $\frac{7}{8}$	3706	3718	3753	SHEBY
	5 $\frac{1}{2}$ -6	2	50-2 C $\frac{7}{8}$	3707	3719	3755	SEMOR
Inch Sizes No. "40"—For Nos. 0-8, 1-12, 1-18, and Four- Spindle 360-Degree Automatic Profiler	1 $\frac{1}{4}$ -1 $\frac{1}{2}$	$\frac{1}{2}$	40- $\frac{1}{2}$ C $\frac{3}{4}$	.....	3714	107043	ARESY
	1 $\frac{3}{4}$ -2	$\frac{3}{4}$	40- $\frac{3}{4}$ C $\frac{3}{4}$	.....	3715	107045	ARITH
	2 $\frac{1}{4}$ -2 $\frac{1}{2}$ -2 $\frac{3}{4}$	1	40-1 C $\frac{13}{16}$	.....	3716	102601	ARETO
	3-3 $\frac{1}{2}$	1 $\frac{1}{4}$	40-1 $\frac{1}{4}$ C $\frac{13}{16}$	3705	3717	107041	SELIA
	4-4 $\frac{1}{2}$ -5	1 $\frac{1}{2}$	40-1 $\frac{1}{2}$ C $\frac{13}{16}$	3706	3718	106662	ARAUW
Millimeter Sizes No. "50"—For all Standard Spindle Millers Except Nos. 0-8, 1-12, 1-18, and Four-Spindle 360-Degree Automatic Profiler (See Note 2 Below)	1 $\frac{1}{4}$ -1 $\frac{1}{2}$	13mm.	50M-13C $\frac{5}{8}$	.....	3714	.....	MEARB
	1 $\frac{3}{4}$ -2	16mm.	50M-16C $\frac{5}{8}$	.....	3715	.....	MEBOR
	2 $\frac{1}{4}$ -2 $\frac{1}{2}$ -2 $\frac{3}{4}$	27mm.	50M-27C $\frac{7}{8}$	.....	3716	3749	MEMAR
	3-3 $\frac{1}{2}$	32mm.	50M-32C $\frac{7}{8}$	3705	3717	3751	METBA
	4-4 $\frac{1}{2}$ -5	40mm.	50M-40C $\frac{7}{8}$	3706	3718	3753	METMI
	5 $\frac{1}{2}$ -6	50mm.	50M-50C $\frac{7}{8}$	3707	3719	3755	METSH
Millimeter Sizes No. "40"—For Nos. 0-8, 1-12, 1-18, and Four-Spindle 360-Degree Automatic Profiler (See Note 2 Below)	1 $\frac{1}{4}$ -1 $\frac{1}{2}$	13mm.	40M-13C $\frac{3}{4}$	.....	3714	107043	MESBO
	1 $\frac{3}{4}$ -2	16mm.	40M-16C $\frac{3}{4}$	.....	3715	107045	MESWE
	2 $\frac{1}{4}$ -2 $\frac{1}{2}$ -2 $\frac{3}{4}$	27mm.	40M-27C $\frac{13}{16}$	.....	3716	102601	MESON
	3-3 $\frac{1}{2}$	32mm.	40M-32C $\frac{13}{16}$	3705	3717	107041	MESFA
	4-4 $\frac{1}{2}$ -5	40mm.	40M-40C $\frac{13}{16}$	3706	3718	106662	MESTR

NOTES—1. Shell End Mill Arbors listed under the No. 50 Series may also be used on 16" Vertical and 36" Horizontal Hydro-Tel Milling Machines. Order must specify machines on which arbors will be used.

2. Metric size Shell End Mill Arbors are not kept in stock. When ordering them, print of cutter to be used with the arbor must accompany the order.

Chrome nickel heat-treated screws for holding shell end mill on arbor are furnished with all arbors.

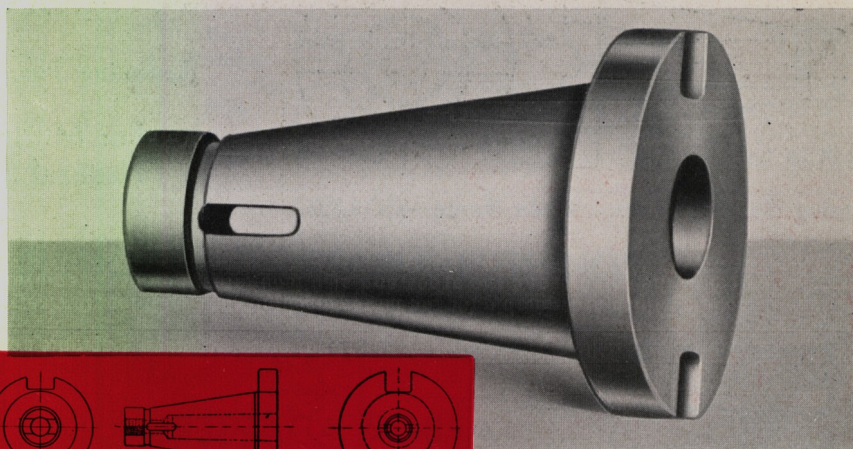
Wrenches are furnished with arbors 50-1 $\frac{1}{4}$ C $\frac{7}{8}$ , 50-1 $\frac{1}{2}$ C $\frac{7}{8}$ , 50-2C $\frac{7}{8}$ , 40-1 $\frac{1}{4}$ C $\frac{13}{16}$  and 40-1 $\frac{1}{2}$ C $\frac{13}{16}$ .

Always Order Arbors by the Code Name and Catalog Number.



## COLLET ADAPTERS... Style E

For Milling Machines Having National Standard Spindle Nose—Nos. 40 and 50 Series

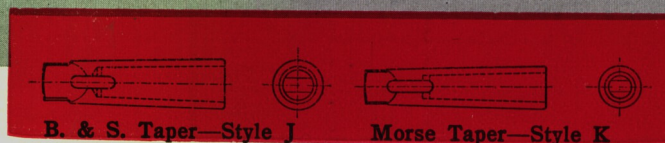
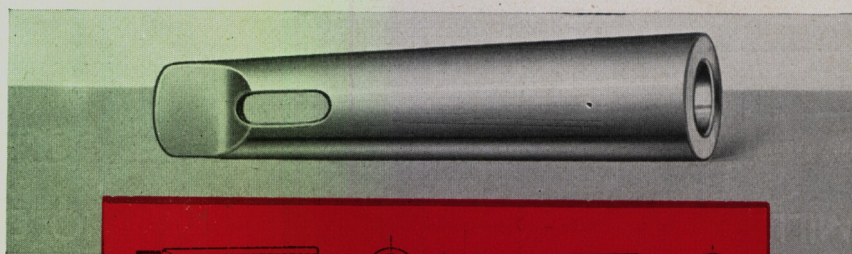


Spindle Series	Inside Taper	Catalog Number	Code Name
No. "50"—For All Standard Spindle Millers Except Nos. 0-8, 1-12, 1-18, and Four-Spindle 360-Degree Automatic Profiler (See Note Below)	9 B&S	50-NSE-9	COLAY
	*9 B&S	50-NSE-9	CONSE
	4 Morse	50-NSE-4	CODAP
	10 B&S	50-NSE-10	COLAE
	*10 B&S	50-NSE-10	COLNE
No. "40"—For Nos. 0-8, 1-12, 1-18, and Four-Spindle 360-Degree Automatic Profiler. NOTE: The No. 40 Series Collet Adapters may also be used with No. 40 Series Quick Change Adapter.	9 B&S	40-NSE-9	CADAP
	*9 B&S	40-NSE-9	DAPTE
	7 B&S	40-NSE-7	CAYYU
	5 B&S	40-NSE-5	ADCOL

\*Without tang drive.

## REDUCING COLLETS

With Collet Adapters and suitable Reducing Collets, small cutters having B. & S. or Morse tapers may be used on machines having the standard spindle nose with non-sticking taper hole.

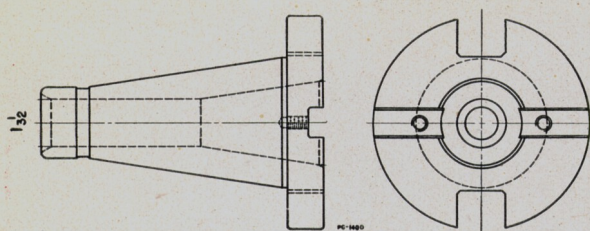


Catalog Number	Outside Taper	Inside Taper	Code Name
J9-4	9 B&S	4 B&S	COLJA
J9-5	9 B&S	5 B&S	COLFI
J9-7	9 B&S	7 B&S	COLEV
K4-1	4 Morse	1 Morse	COLCO
K4-2	4 Morse	2 Morse	COLBU
K4-3	4 Morse	3 Morse	COBRY

NOTE—Collet Adapters, Style E listed under the No. 50 Series may also be used on 16" Vertical and 36" Horizontal Hydro-Tel Milling Machines. Order must specify machines on which adapters will be used.

Always Order Arbors by the Code Name and Catalog Number.





Catalog No. 50-NS-40. Code Name—COAFD.

## COLLET ADAPTER

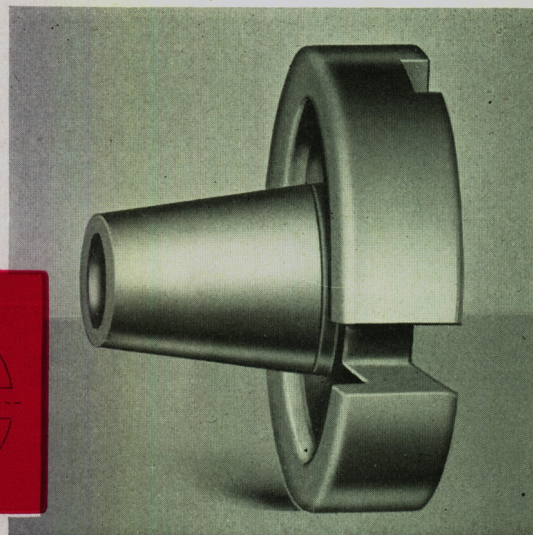
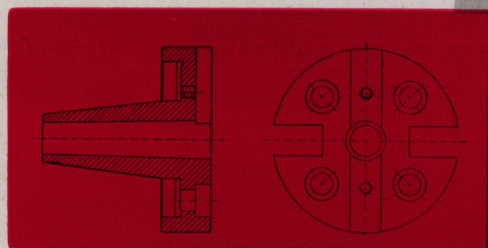
Reducing No. 50 to 40 Spindle Series

For Milling Machines Having  
National Standard Spindle Nose

## ARBOR ADAPTERS... Style D

For Milling Machines Having National Standard Spindle Nose—Nos. 40 and 50 Series

Arbor adapters, style D, are furnished in order that you may use old style Nos. 10, 11 and 12 B. & S. taper arbors in machines having the new standard non-sticking spindle end.



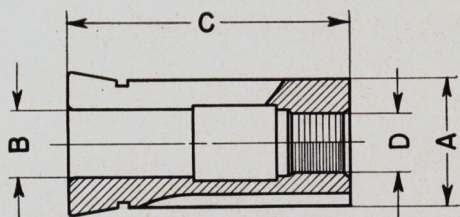
Spindle Series	Catalog Number	Inside Taper	Extends Beyond Spindle Nose	Part Numbers		Code Name
				Screw	Wrench	
No. "50"—All Standard Millers Except Nos. 1-12, 1-18 and 0-8	50-NSD-10	10 B&S	1	3689	3688	ARDAP
	50-NSD-11	11 B&S	1½	3690	3688	ARBAD
	50-NSD-12	12 B&S	1⅞	3691	3688	ADDEE
"40"—Nos. 1-12 and 1-18	40-NSD-9	9 B&S	1	79715	3985	ADPAR

Screws listed above are to be used to fasten adapters to spindle nose. Two keys with attaching screws and four chrome nickel heat-treated screws will be furnished with each adapter unless otherwise specified on order. Wrench 3688 or 3985 will be furnished with each adapter. This is a special wrench and must be used to fasten screws.

Always Order Arbors by the Code Name and Catalog Number.



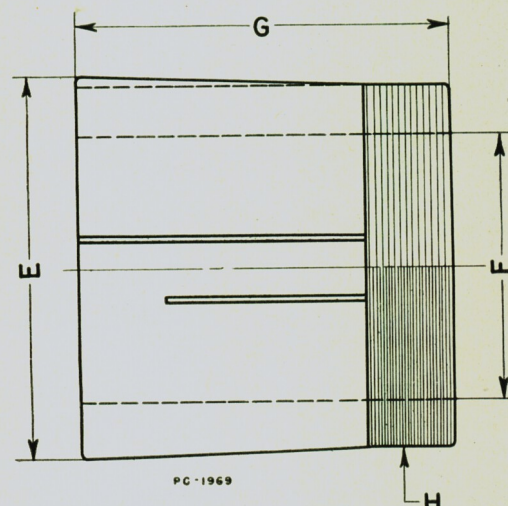
## ARBOR SUPPORT BUSHINGS



Part Number	Outside Dia. A	Hole Dia. B	Length C	Threaded Hole D
3695	1 <sup>5</sup> / <sub>16</sub> "	.7185" .7190"	2 <sup>7</sup> / <sub>8</sub> "	<sup>5</sup> / <sub>8</sub> "-11 N. C.
4037	1 <sup>5</sup> / <sub>16</sub> "	.7185" .7190"	2 <sup>1</sup> / <sub>4</sub> "	<sup>5</sup> / <sub>8</sub> "-11 N. C.

## ARBOR SUPPORT ADJUSTABLE BUSHINGS

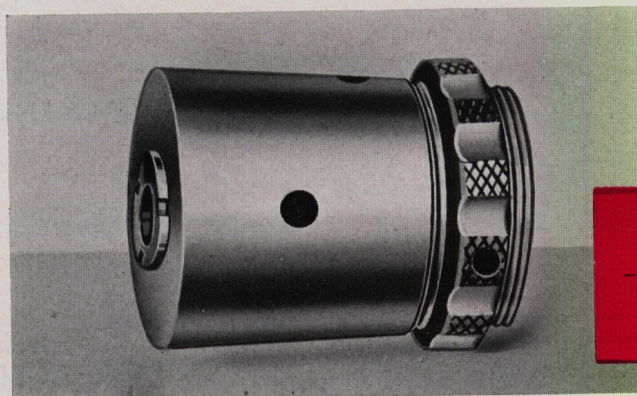
Outside Dia. Bearing Collar	Part Number Bushing	Outside Dia. E	Hole Dia. F	Length G	N. S. Threads H
1 <sup>7</sup> / <sub>8</sub> "	*4039	2 <sup>1</sup> / <sub>2</sub> "	1.8750" 1.8757"	3 <sup>1</sup> / <sub>4</sub> "	2 <sup>1</sup> / <sub>4</sub> "-16
1 <sup>7</sup> / <sub>8</sub> "	**3696	3 <sup>1</sup> / <sub>4</sub> "	1.8750" 1.8757"	3 <sup>11</sup> / <sub>16</sub> "	3"-16
2 <sup>1</sup> / <sub>8</sub> "	3697	3 <sup>1</sup> / <sub>4</sub> "	2.1250" 2.1257"	3 <sup>11</sup> / <sub>16</sub> "	3"-16
2 <sup>3</sup> / <sub>4</sub> "	**3698	3 <sup>1</sup> / <sub>4</sub> "	2.7500" 2.7510"	3 <sup>11</sup> / <sub>16</sub> "	3"-16
2 <sup>3</sup> / <sub>4</sub> "	3699	3 <sup>31</sup> / <sub>32</sub> "	2.7500" 2.7510"	3 <sup>11</sup> / <sub>16</sub> "	3 <sup>3</sup> / <sub>4</sub> "-16
3 <sup>3</sup> / <sub>8</sub> "	**3700	3 <sup>31</sup> / <sub>32</sub> "	3.3710" 3.3750"	3 <sup>11</sup> / <sub>16</sub> "	3 <sup>3</sup> / <sub>4</sub> "-16



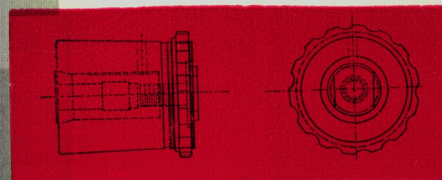
\*To be used with a No. 40 spindle taper arbor.

\*\*These bushings are special and are to be used with arbors which are larger than standard equipment.

## ARBOR SUPPORT BUSHING ADAPTER... Style O



Arbor Support Bushing Adapters enable you to use style "A" arbors on machines which do not include a style "A" arbor support with the standard equipment.



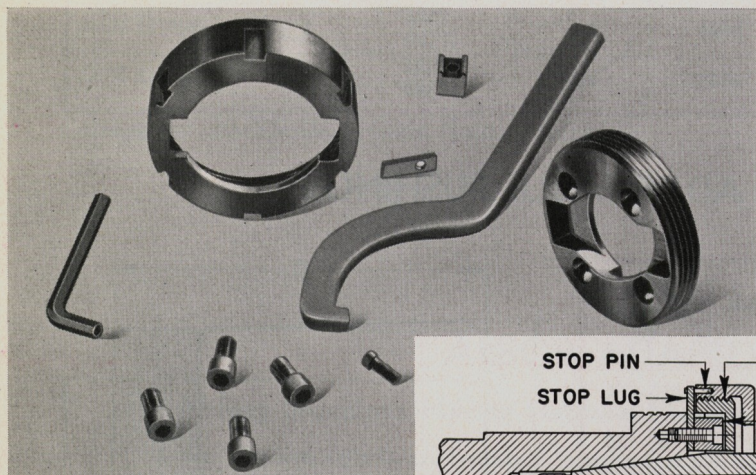
Catalog Number	Diameter, Large End	Part Numbers of Parts Included					Code Name
		Adapter	Bushing	Nut	Washer	Screw	
M-01	3.250	3704	3695	3972	128	3692	ADABU
M-02	3.969	109942	3695	3702	128	3692	AXORT

Adapter Catalog No. M-01 is furnished as standard equipment on the Nos. 3 and 4 Medium Speed and High-Speed Dial Types and must always be used with these machines when Style "A" arbors without bearing collars are used. M-02 is furnished as standard equipment on the Nos. 4 and 5 High Powers, Nos. 5 and 6 High Power Dial Types, and Nos. 5 and 6 Dual Power Dial Types (except vertical machines).

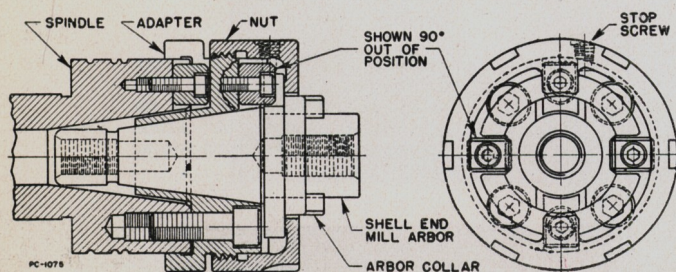
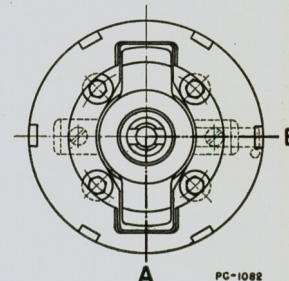
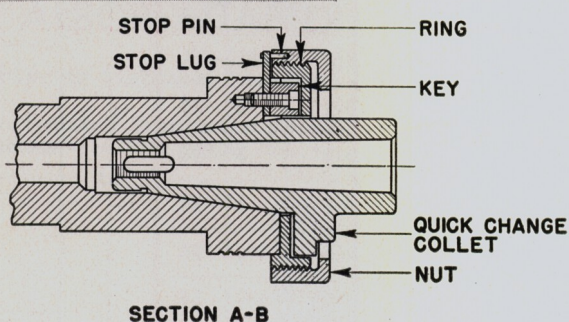


## QUICK CHANGE ADAPTERS

For Milling Machines Having National Standard Spindle Nose—Nos. 40 and 50 Series



FOR "50" SPINDLE SERIES



FOR "40" SPINDLE SERIES

For all CINCINNATI Milling Machines, having No. 50 Standard spindle nose, listed on pages 2 and 3.

**Complete Adapter. Catalog No. NS-H5.....Code Name—ADACO**  
Includes nut, special key, stop lug, spanner wrench, screw, ring, four ring screws, and socket wrench.

For CINCINNATI Nos. 1-12 and 1-18 Plain Automatic Milling Machines (No. 40 Standard Spindle Nose).

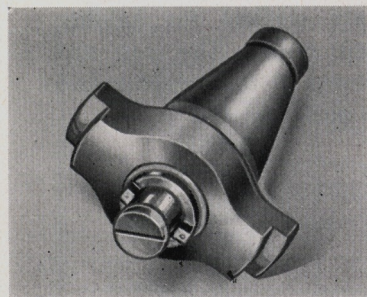
**Complete Adapter. Catalog No. NS-H4.....Code Name—QUIAD**  
Includes adapter, adapter nut, screws, driving keys, and spanner wrench.

Always Order Arbors by the Code Name and Catalog Number.



## QUICK CHANGE ARBORS AND COLLETS

For Milling Machines Having National Standard Spindle Nose—No. 50 Series

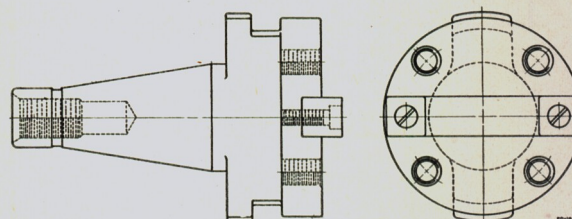


### QUICK CHANGE SHELL END MILL ARBORS—"50" SPINDLE SERIES

(See page 10 for No. 40 Spindle Series)

Catalog Number	Diameter Mills	Stud Diameter	Code Name
50- 1/2 FC 5/8	1 1/4-1 1/2	1/2	ARABB
50- 3/4 FC 5/8	1 3/4-2	3/4	ARDUI
50-1 FC 7/8	2 1/4-2 1/2-2 3/4	1	ARSHE
50-1 1/4 FC 7/8	3-3 1/2	1 1/4	ARTTA
50-1 1/2 FC 7/8	4-4 1/2-5	1 1/2	ARICK
50-2 FC 7/8	5 1/2-6	2	AREMI

### QUICK CHANGE FACE MILL ARBOR No. "50" SPINDLE SERIES



Catalog No. .... 50-5 1/16 FC

Stud Diameter. .... 5 1/16"

Diameter Face Mills .... 7" to 12"

Code Name .... ARFAC

### QUICK CHANGE COLLETS—"50" SPINDLE SERIES

(See Page 11 for No. 40 Spindle Series)

Catalog Number	Style	Inside Taper	Code Name
50-NS-FEB 7	B	No. 7 B. & S.	COQUI
50-NS-FEB 9	B	No. 9 B. & S.	COSEM
50-NS-FEB 10	A	No. 10 B. & S.	COSBE
50-NS-FEB 11	B	No. 11 B. & S.	COTTO
50-NS-FEM 2	B	No. 2 Morse	CORIC
50-NS-FEM 3	B	No. 3 Morse	COROB
50-NS-FEM 4	B	No. 4 Morse	CODDE

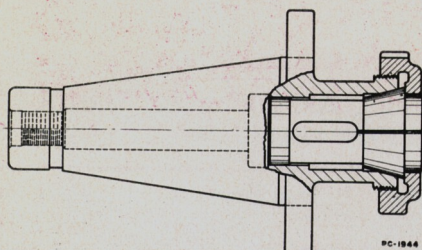
Always Order Arbors by the Code Name and Catalog Number.





## SPRING CHUCK AND SPRING COLLETS

For Milling Machines Having National Standard Spindle Nose—Nos. 40 and 50 Series



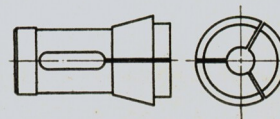
### SPRING CHUCK

The spring chuck with interchangeable spring collets provides a quick and accurate method for holding straight shank drills and end mills. The cap nut seats the collet in the taper bore of the adapter and firmly clamps the tool shank in position.

	Part Numbers of Parts Included			Code Name
	Spindle Chuck	Nut	Wrench	
For all CINCINNATI Milling Machines, having No. 50 Standard spindle nose, listed on pages 2 and 3.	127581	127580	120380	CHULE
For CINCINNATI Nos. 0-8, 1-12, and 1-18 Plain Automatic Milling Machines (No. 40 Standard spindle nose).	128891	127580	120380	CHUPA

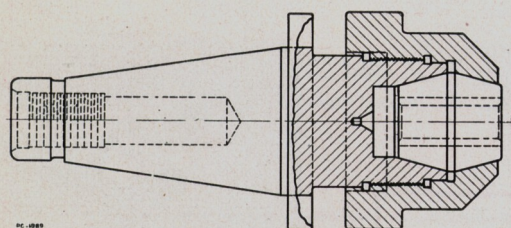
### SPRING COLLETS

Size	Part No.	Size	Part No.	Size	Part No.
$\frac{1}{8}$ "	121658	$\frac{3}{8}$ "	121662	$\frac{3}{4}$ "	121666
$\frac{3}{16}$ "	121659	$\frac{1}{2}$ "	121663	$\frac{7}{8}$ "	121667
$\frac{1}{4}$ "	121660	$\frac{1}{2}$ "	121664	1"	121668
$\frac{5}{16}$ "	121661	$\frac{5}{8}$ "	121665		



## SPINDLE CHUCK AND COLLETS

For 16" and 28" Series Vertical Hydro-Tel Milling Machines



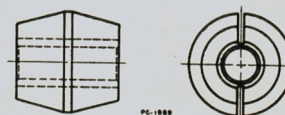
### SPINDLE CHUCK

The spindle chuck provides a quick and easy method for changing cutters when using straight shank end mills.

Part Numbers of Parts Included			Code Name
Spindle Chuck	Nut	Wrench	
113524	105597	103298	CHUBB

### COLLETS

Size	Part No.	Size	Part No.	Size	Part No.
$\frac{1}{4}$ "	105587	$\frac{5}{8}$ "	105590	1"	105593
$\frac{3}{8}$ "	105588	$\frac{3}{4}$ "	105591	$1\frac{1}{8}$ "	105594
$\frac{1}{2}$ "	105589	$\frac{7}{8}$ "	105592		

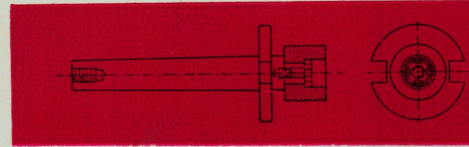
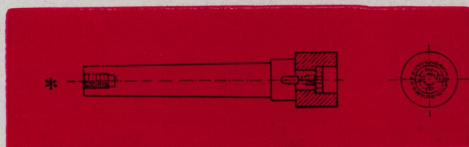


Always Order Arbors by the Code Name and Catalog Number.



## ARBORS FOR NATIONAL STANDARD SHELL END MILLS

For Milling Machines Having B. & S. Taper Hole in Spindle



Catalog Number	Code Name	Diameter Range of End Mills	Catalog Number	Code Name
*(e)	10B-1/2	SEHAF (a)	12B-1/2	SENOG (a)
	10B-3/4	SEREE (a)	12B-3/4	SEPPE (a)
	10B1	SEFIX (a)	12B1	SEXET (a)
	10B1 1/4	SEWOL (b)	12B1 1/4	SEABO (b)
	10B1 1/2	SEMFO (c)	12B1 1/2	SECCA (c)
	10B2	SEUKU (d)	12B2	SEDSI (d)
(f)	11B-1/2	SEBBE (a)	14B-1/2	SEEHA (a)
	11B-3/4	SEDLY (a)	14B-3/4	SEGFI (a)
	11B1	SEGRA (a)	14B1	SEJON (a)
	11B1 1/4	SEISK (b)	14B1 1/4	SEMGA (b)
	11B1 1/2	SEKMO (c)	14B1 1/2	SEPZU (c)
	11B2	SELTY (d)	14B2	SEQUO (d)

(a) Includes screw driver head.

(b) Wrench No. 3705.

(c) Wrench No. 3706.

(d) Wrench No. 3707

(e) No. 10 B. & S. Taper Shank.

(f) No. 11 B. & S. Taper Shank.

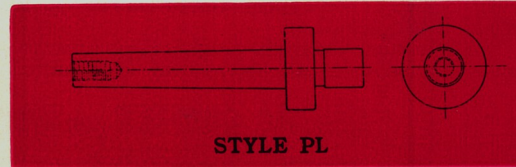
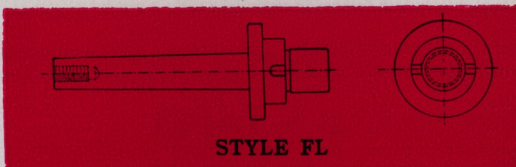
(g) No. 12 B. & S. Taper Shank.

(h) No. 14 B. & S. Taper Shank.

\*Arbors with No. 10 B. & S. taper shank are driven by the friction of the taper and have no driving flange.

## ARBORS FOR OLD STYLE SHELL END MILLS

For Milling Machines with B. & S. Taper Hole in Spindle

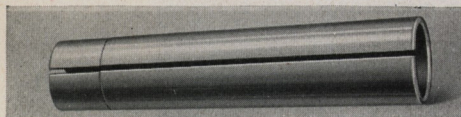


Catalog Number	Style	No. of B. & S. Taper	END FOR CUTTER		Diameter Range of End Mills	Code Name
			Diameter	Length		
301	PL	9	3/4	7/8	1 5/8, 1 3/4, 1 7/8	CACO
302	PL	9	1	1	2, 2 1/4	CADUC
303	PL	10	3/4	7/8	1 5/8, 1 3/4, 1 7/8	CUJOL
304	PL	10	1	1	2, 2 1/4	CALDO
305	PL	10	1 1/4	1 1/4	2 1/2, 2 3/4, 3	CANUS
306	PL	10	1 1/2	1 1/2	3 1/2, 4, 4 1/2, 5, 6	CAPIL
307	PL	11	3/4	7/8	1 5/8, 1 3/4, 1 7/8	CARAF
308	PL	11	1	1	2, 2 1/4	CASCA
309	PL	11	1 1/4	1 1/4	2 1/2, 2 3/4, 3	CATEG
310	PL	11	1 1/2	1 1/2	3 1/2, 4, 4 1/2, 5, 6	CAUDO
313	FL	11	1 1/4	1 1/4	2 1/2, 2 3/4, 3	CERAM
314	FL	11	1 1/2	1 1/2	3 1/2, 4, 4 1/2, 5, 6	CHEVA
317	FL	12	1 1/4	1 1/4	2 1/2, 2 3/4, 3	CIBOR
318	FL	12	1 1/2	1 1/2	3 1/2, 4, 4 1/2, 5, 6	CONVO
319	FL	14	1 1/4	1 1/4	2 1/2, 2 3/4, 3	ARBEM
320	FL	14	1 1/2	1 1/2	3 1/2, 4, 4 1/2, 5, 6	ARELL

Always Order Arbors by the Code Name and Catalog Number.



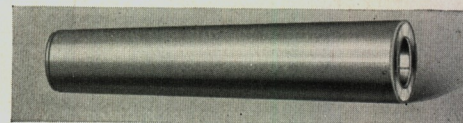
## COLLETS FOR MILLING MACHINES WITH B. & S. TAPER HOLE IN SPINDLE



STYLE CI



STYLE ST-Threaded



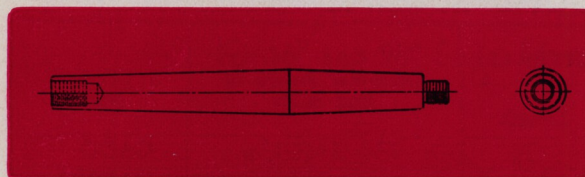
STYLE ST

Catalog Number	Style	Outside B. & S. Taper	Inside B. & S. Taper	Small End	Code Name
451	ST	7	4	Plain	DRAYO
452	ST	7	5	Plain	EWOR
453	ST	9	5	Threaded	DRAM
454	ST	9	7	Threaded	DRIFT
455	ST	10	7	Threaded	DRUA
456	CI	10	9	Plain	DRUID
457	ST	11	7	Threaded	DWARF
458	CI	11	9	Plain	DRYUD
459	CI	11	10	Plain	ECLAT
460	CI	12	9	Plain	DUMB
461	CI	12	10	Plain	DYZZ
462	CI	12	11	Plain	DORIL
463	ST	14	10	Plain	ECOLL
464	ST	14	11	Plain	EFIO
465	ST	14	12	Plain	ENUI
466	ST	10	5	Threaded	COUSA

The CI and ST style collets can be used on any of our machines having spindle holes of corresponding sizes, regardless of the style of spindle end.

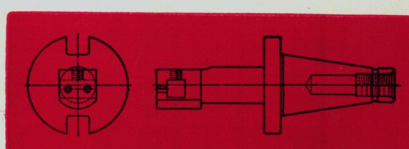
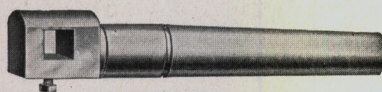
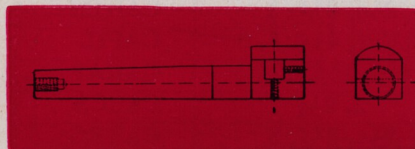
The CI collets, which are suitable for the larger machines, are split lengthwise, which allows a more intimate contact between the collet, the spindle, and the arbor, and also facilitates their easy removal after the arbor has been taken out.

## SCREW CUTTER ARBORS—WITH 10 B. & S. TAPER



We carry in stock arbors for machines with No. 10 B. & S. Taper. The end for cutters has  $\frac{3}{8}$ —24 right-hand thread.  
Code Name.....ACE

## FLY CUTTER ARBORS FOR MILLING MACHINES



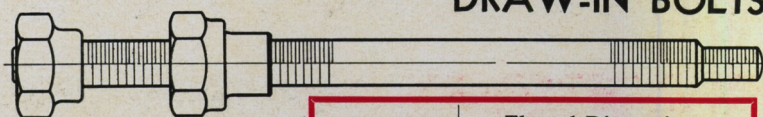
We carry the following sizes in stock. A piece of tool steel  $\frac{3}{4}$ " square by 3" long is furnished with each arbor.

Catalog Number	Size of Hole	No. of Taper	Code Name
401	$\frac{3}{4}$ " Sq.	10	ASP
402	$\frac{3}{4}$ " Sq.	11	ANT
404	$\frac{3}{4}$ " Sq.	"50" Series	ARXCU

Always Order Arbors by the Code Name and Catalog Number.



## DRAW-IN BOLTS



Arbor draw-in bolts are supplied with double-threaded ends.

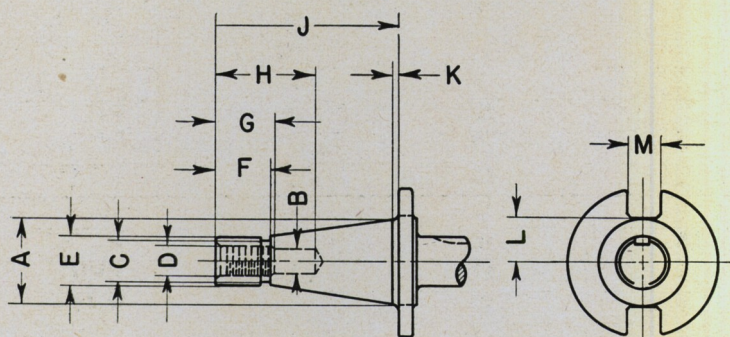
When ordering draw-in bolts, always specify machine serial number.

Taper	Thread Dimensions	
	Large Diam.	Small Diam.
No. 50	1"-8	$\frac{5}{8}$ "-11
No. 60	$1\frac{1}{4}$ "-7	1"-8

## DIMENSIONAL DRAWINGS

### Nos. 40 AND 50 SERIES TAPER SHANK

For Use on All Milling Machines Except 36" Horizontal Hydro-Tel

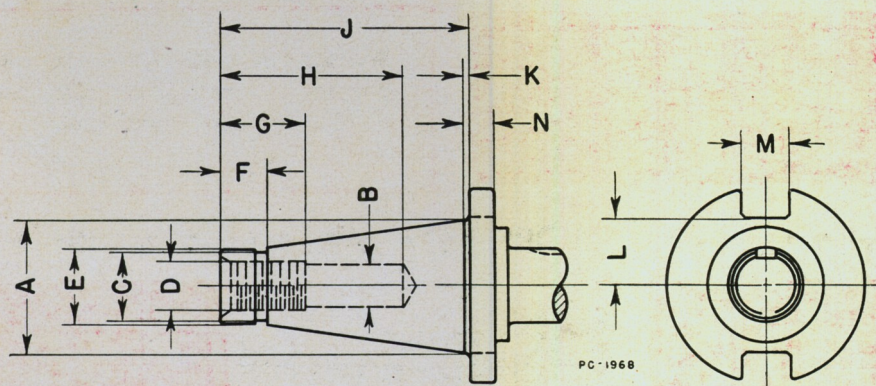


Spindle Series	A	B	C	D	E	F
No. 40	$1\frac{3}{4}$ "	$\frac{11}{16}$ "	$\frac{11}{16}$ "	$\frac{5}{8}$ "-11	.985" .987"	1"
No. 50	$2\frac{3}{4}$ "	$\frac{7}{8}$ "	$1\frac{1}{2}$ "	1"-8	1.547" 1.549"	1"

Spindle Series	G	H	J	K	L	M
No. 40	$1\frac{1}{8}$ "	$1\frac{11}{16}$ "	$3\frac{3}{4}$ "	$\frac{1}{8}$ "	.875" .890"	.630" .640"
No. 50	$1\frac{3}{4}$ "	$3\frac{1}{2}$ "	$5\frac{1}{8}$ "	$\frac{1}{8}$ "	1.375" 1.390"	1.008" 1.018"

### Nos. 50 AND 60 SERIES TAPER SHANK

For Use on 36" Horizontal Hydro-Tel Only



Spindle Series	A	B	C	D	E	F	G	H	J	K	L	M	N
No. 50	$2\frac{3}{4}$ "	$\frac{7}{8}$ "	$1\frac{1}{2}$ "	1"-8	1.547" 1.549"	1"	$1\frac{3}{4}$ "	$3\frac{1}{2}$ "	$5\frac{1}{8}$ "	$\frac{1}{8}$ "	1.375" 1.390"	1.008" 1.018"	.600" .605"
No. 60	$4\frac{1}{4}$ "	$1\frac{7}{16}$ "	$2\frac{3}{32}$ "	$1\frac{1}{4}$ "-7	2.359" 2.361"	$1\frac{3}{4}$ "	$2\frac{1}{4}$ "	$4\frac{1}{4}$ "	$8\frac{5}{16}$ "	$\frac{1}{8}$ "	2.390" 2.400"	1.008" 1.018"	.875" .880"





**MILLING MACHINES**  
**BROACHING MACHINES**  
**CUTTER SHARPENING MACHINES**

DIRECT FIELD ENGINEERING OFFICES AND SALES REPRESENTATIVES THROUGHOUT  
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**THE CINCINNATI MILLING MACHINE CO., CINCINNATI 9, OHIO, U. S. A.**

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